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USE OF A MACROECONOMIC MODEL OF INTER-INDUSTRIAL RELATIONS TO SIMULATE INDUSTRIAL EXPANSION IN SPAIN

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Doctor of Science,
Technical General Secretary
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USE OF A MACROECONOMIC MODEL OF INTER-INDUSTRIAL RELATIONS TO SIMULATE INDUSTRIAL EXPANSION IN SPAIN

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SUMMARY

A model of interrelationships between industrial sectors is a kind of laboratory where various policies can be tested. Analysis of the conditions, results and effects of alternative policies leads to a better understanding of the behaviour of the industrial system, of the manner in which it reacts to the various stimuli provided by an Economic Development Plan and of how the latter can be carried out without creating bottlenecks in the development of individual sectors.

Technical coefficients for production and fixed capital were calculated for each of the sectors into which industrial activity was divided, distinguishing foreign participation in the form of imported equipment and materials from the domestic product. Coefficients were also calculated for labour, classified according to degree of skill, and shown under the two headings of numbers and cost.

In the same way, data were collected for each sector on the present level of production, the length of the production cycle, the volume of stored material, taxes and overheads, percentage utilisation of existing capacity regular requirements for the maintenance and replacement of existing equipment etc.

Mathematical formulae describe, with an acceptable degree of accuracy the technical relations of the industrial system and its functioning when, as a result of stimuli or decisions of national economic policy, the sectors into which it is subdivided are set in motion and the interdependent relations between them are brought into action.

After deducting its own integral consumption, the product of the industrial system has to cover the requirements of:

(a) non-industrial sectors not included in the system;

(b) exports; (c) government expenditure, and (d) the final demand of the domestic economy. A knowledge of these requirements is to the industrial system what a sales forecast is to the manufacturing division of a business.

All the formulae constituting the model and the logical order in which they must be considered, were programmed for processing in an electronic computer which, by reason of its data-storage capacity is most suitable for the preservation of present results for later use.

With the model, it was possible to study the simulated growth of the Spanish industrial system over the period 1960-70, under development conditions corresponding to two alternative increases in the national product. The annual cumulative rates of increase for these alternatives were 3.5% and 5%.

A knowledge of the behaviour of the Spanish industrial system in a climate of development and of its possibilities and limitations, will undoubtedly be of great assistance to the competent authorities when analysing the compatability of general economic development schemes.

It is obvious that the immediate results of this simulation do not of themselves constitute a forecast of the industrial development which will actually take place. We can only consider such results as indicating how the industrial system would behave, if it responded solely to the assumed stimulus of a fixed-rate increase in the national product and the demand created by this increase for the various industrial sectors, with no major external intervention, and on the basis of the present structure of Spanish industry.

Despite the natural reserve with which we must accept the accuracy and reliability of some data, and therefore of the calculated results, the simulation worked out is of great value as a first experiment, which has contributed vital information on methodology and techniques. This information has made it possible to continue the work with greater efficiency and to obtain more objective data on the facts concerning the industrial sectors, in place of the subjective estimates of specialists, which are not statistically reliable.

S - 1112 E - Nov.1962 - 1,600